

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Etsuko NAKAMURA et al.

Serial No. 10/721,164

Filed November 26, 2003



: Confirmation No. 5528

: Docket No. 2003\_1698A

: Group Art Unit 1752

: Examiner Amanda C. Walke

LOWER LAYER MATERIAL FOR WIRING,  
EMBEDDED MATERIAL, AND WIRING  
FORMATION METHOD

**Mail Stop: Office of Initial Patent  
Examination's Filing Receipt Corrections**

---

**SECOND SUBMISSION OF**  
**REPLY TO DENIAL OF REQUEST FOR CORRECTED FILING RECEIPT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

On January 26, 2005, Applicants submitted to the USPTO a paper entitled "Reply to Denial of Request for Corrected Filing Receipt". No answer from the USPTO has been received by Applicants thus far and, therefore, a second "Reply to Denial of Request for Corrected Filing Receipt" is submitted herewith. Concurrently submitted herewith is a second Request for Corrected Notice of Recordation of Assignment Document.

Applicants' Request for Corrected Filing Receipt was denied in a paper dated January 13, 2005 on the ground that an amendment is needed to make the requested change in the filing receipt.

In this regard, the title given in the filing receipt is "Undercoating material for wiring, embedded material, and wiring formation method". However, the title given in the Specification is "Lower layer material for wiring, embedded material, and wiring formation method" and this is the correct title.

It is also the title given in the Declaration with which the Application was filed.

A copy of the title page of the specification as well as a copy of the Declaration is enclosed so it is clear that Applicants' Request for Corrected Filing Receipt dated January 6,

2005 should have been granted without amendment.

Respectfully submitted,

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

Etsuko NAKAMURA et al.

By: Matthew M. Jacob

Matthew M. Jacob  
Registration No. 25,154  
Attorney for Applicants

MJ/kes  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
June 15, 2005

**COPY**

LOWER LAYER MATERIAL FOR WIRING,

EMBEDDED MATERIAL, AND

WIRING FORMATION METHOD



5

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is based upon and claims the benefit of priority from the prior Japanese Patent Applications No. 2002-343867, No. 2002-343868, No. 2002-343869 and No. 2002-343870 filed on November 27, 2002; the 10 entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1) Field of the Invention

The present invention relates to an undercoating material used 15 preferably for forming wiring on a semiconductor substrate, a filler material and a wiring formation method using the same. The undercoating material referred to herein indicates (a) an undercoating layer which is formed on a substrate before formation of a photoresist layer on the substrate whereby a reflected exposure light from the surface of the substrate at the time of patterning of a photoresist is prevented from entering the photoresist, to achieve improvement in the resolution of the photoresist pattern, (b) an 20 undercoating layer suitable for a silicon bilayer resist, which is characterized by improving the patterning accuracy of a resist by constituting a photoresist layer used in lithography for wiring, from two layers, that is, an undercoating undercoating layer including an organic film and a silicon-containing upper resist layer, and 25

## DECLARATION AND POWER OF ATTORNEY FOR U.S. PATENT APPLICATION

米国特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書（英語でご記入下さい）

JUN 15 2005

COPY

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: 下記の氏名の発明者として、私は以下の通り宣言します。私の住所、郵便物送付先、国籍は下記の私の氏名の後に記載された通りです。下記の名称の発明に関して請求の範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者（下記の氏名が複数の場合）であると信じています。

Title (発明の名称):

## LOWER LAYER MATERIAL FOR WIRING, EMBEDDED MATERIAL, AND WIRING FORMATION METHOD

of which is described and claimed in:

上記名称の発明を記述し特許請求する書類は、以下のいずれかです。

() the attached specification, or  
本状に添付した明細書⑩ the specification in the application Serial No. 10/721,164 filed November 26, 2003;  
(上記日付) 提出の米国出願番号(上記出願番号)で、and with amendments through \_\_\_\_\_ (if applicable), or  
(該当する場合) (上記日付等)に訂正された明細書() the specification in International Application No. PCT/\_\_\_\_\_, filed \_\_\_\_\_,  
and as amended on \_\_\_\_\_ (if applicable).(上記日付) 提出の特許協力条約に基づく国際出願番号PCT/(上記出願番号)で、  
(該当する場合) (上記日付等)に訂正された明細書

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above.

私は、特許請求の範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR §1.56.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許性の有無について重要な情報を開示する義務があることを認めます。

I hereby claim priority benefits under Title 35, United States Code, §119 (and §172 if this application is for a Design) of any application(s) for patent or inventor's certificate listed below and have also identified below any application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

私は、米国法典第35編119条（もし本願が意匠に関する出願の場合は172条）に基き、下記の特許出願又は発明者証の出願についての優先権の利益をここに主張するとともに、優先権主張の基礎となる出願日を有する、本出願の前に出願された特許または発明者証の出願を以下にすべて、枠内をマークすることで示しています。

COUNTRY 国名	APPLICATION NO. 出願番号	DATE OF FILING 出願日	PRIORITY CLAIMED 優先権主張
Japan	2002-343867	Nov. 27, 2002	Yes
Japan	2002-343868	Nov. 27, 2002	Yes
Japan	2002-343869	Nov. 27, 2002	Yes
Japan	2002-343870	Nov. 27, 2002	Yes

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or 365(c) of any PCT international application designating the United States listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which become available between the filing date of the prior application and the national or PCT international filing date of this application:

私は、米国法典第35編120条に基いて下記の米国特許出願、又は米国を指定している特許協力条約365条(c)に基づく優先権をここに主

私は、米国法典第35編120条に基いて下記の米国特許出願、又は米国を指定している特許協力条約365条(c)に基づく優先権をここに主張します。また、本出願の各請求の範囲の技術的事項が米国法典第35編112条第1段で規定された方法で先行する米国特許出願に開示されていない限り、当該先行出願の出願日以降で本出願の国内又はPCTに基づく国際出願の提出日までの期間中に入手できるようになった、連邦規則法典第37編1条56項で定義された特許性の有無に関する重要な情報について、開示義務があることを認識しています。

APPLICATION SERIAL NO. 出願番号	U.S. FILING DATE 米国出願日	STATUS: PATENTED, PENDING, ABANDONED 現状:特許許可済、係属中、放棄済

And I hereby appoint Michael R. Davis, Reg. No. 25,134; Matthew M. Jacob, Reg. No. 25,154; Warren M. Check, Jr., Reg. No. 33,367; Nils E. Pedersen, Reg. No. 33,145; Charles R. Watts, Reg. No. 33,142; and Michael S. Huppert, Reg. No. 40,268, who together constitute the firm of WENDEROTH, LIND & PONACK, L.L.P., as well as any other attorneys and agents associated with Customer No. 000513, to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith.

私は、本出願の審査及び本出願に関連するすべてのビジネスに関わる手続きを米国特許商標局に対して遂行するため、共同で WENDEROTH, LIND & PONACK, L.L.P.法律事務所を構成しているMichael R. Davis（登録番号第25,134号）、Matthew M. Jacob（登録番号第25,154号）、Warren M. Check, Jr.（登録番号第33,367号）、Nils E. Pedersen（登録番号第33,145号）、Charles R. Watts（登録番号第33,142号）及びMichael S. Huppert（登録番号第40,268号）並びにカスタマー番号第000513号に付帯する他の弁護士及び弁理士を名いたします。

I hereby authorize the U.S. attorneys named herein to accept and follow instructions from \_\_\_\_\_ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and myself. In the event of a change in the persons from whom instructions may be taken, the U.S. attorneys named herein will be so notified by me.

私は、本願に関して米国特許商標局で行われるあらゆる手続行為に關し、ここに指名した米国弁護士を、弁護士と私との間で直接連絡をとることなく、(米国弁護士が連絡する相手先、譲受人もしくは日本の代理人等)からの指示を受けそれに従うことを、ここに承認します。指示を送る者が変更される場合は、その旨を上記米国弁護士は私から告知されます。

Direct Correspondence to Customer No: (カスタマー番号)   000513 PATENT TRADEMARK OFFICE	Direct Telephone Calls to: (連絡先電話番号)  WENDEROTH, LIND & PONACK, L.L.P. 2033 "K" Street, N.W., Suite 800 Washington, D.C. 20006-1021  Phone:(202) 721-8200 (電話番号) Fax:(202) 721-8250 (ファクシミリ番号)
---	---

Full Name of First Inventor 第一発明者の氏名	Etsuko Nakamura Etsuko NAKAMURA	Date Feb. 2, 2004
Residence & Citizenship 居住地及び国籍	Kanagawa, Japan	
Post Office Address 郵便物送付先	c/o TOKYO OHKA KOGYO CO., LTD. 150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012 Japan	

Full Name of Second Inventor 第二発明者の氏名	Kazumasa Wakiya Kazumasa WAKIYA	Date Feb. 2, 2004
Residence & Citizenship 居住地及び国籍	Kanagawa, Japan	
Post Office Address 郵便物送付先	c/o TOKYO OHKA KOGYO CO., LTD. 150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012 Japan	

I further declare that all statements made herein of my own knowledge are true, and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

私は、私自身の知識に基づいて本宣言書で私が行う表明が真実であり、かつ私の入手した情報と私の信じるところに基づく表明がすべて真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行えば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

The above application may be more particularly identified as follows:  
上記出願は、さらに具体的には以下のように特定されます。

U.S. Application Serial No. 10/721,164 Filing Date November 26, 2003  
(上記出願日) 提出の米国特許出願第 (上記出願番号) 号

Applicant Reference Number \_\_\_\_\_ Atty Docket No.  
出願人側整理番号 (上記番号) 米国弁護士側管理番号 (上記番号)

Title of Invention  
発明の名称

LOWER LAYER MATERIAL FOR WIRING, EMBEDDED MATERIAL, AND WIRING FORMATION METHOD

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Etsuko NAKAMURA et al.

Serial No. 10/721,164

Filed November 26, 2003

LOWER LAYER MATERIAL FOR WIRING,  
EMBEDDED MATERIAL, AND WIRING  
FORMATION METHOD



Confirmation No. 5528

Docket No. 2003\_1698A

Group Art Unit 1752

Examiner Amanda C. Walke

**Mail Stop: Assignment Recordation  
Services**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants' first request for Corrected Notice of Recordation of Assignment Document was returned by the USPTO without an explanation.

Accordingly, Applicants submit herewith a Second Request for Corrected Notice of Recordation of Assignment Document, correcting the title of the invention from "UNDERCOATING MATERIAL FOR WIRING, EMBEDDED MATERIAL AND WIRING FORMATION METHOD" TO --LOWER LAYER MATERIAL FOR WIRING, EMBEDDED MATERIAL, AND WIRING FORMATION METHOD--. A copy of the erroneous Notice marked up in red ink is enclosed.

Respectfully submitted,

Etsuko NAKAMURA et al.

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

By: Matthew M. Jacob  
Matthew M. Jacob  
Registration No. 25,154  
Attorney for Applicants

MJ/kes  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
June 15, 2005



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

OCTOBER 28, 2004

PTAS

WENDEROTH, LIND & PONACK, L.L.P.  
MATTHEW M. JACOB, ESQ.  
2033 K STREET, N.W., SUITE 800  
WASHINGTON, DC 20006-1021



\*102741646A\*

WENDEROTH, LIND & PONACK

2004

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF  
THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS  
AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER  
REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE  
INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA  
PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD  
FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY  
CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723.  
PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE,  
ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY,  
SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 05/05/2004

REEL/FRAME: 015297/0600  
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNEE'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNEE:  
NAKAMURA, ETSUKO

DOC DATE: 02/02/2004

ASSIGNEE:  
WAKIYA, KAZUMASA

DOC DATE: 02/02/2004

ASSIGNEE:  
TOKYO OHKA KOGYO CO., LTD.  
150 NAKAMARUKO, NAKAHARA-KU,  
KAWASAKI-SHI  
KANAGAWA 211-0012, JAPAN

FILING DATE: 11/26/2003  
ISSUE DATE:

SERIAL NUMBER: 10721164  
PATENT NUMBER:  
TITLE: UNDERCOATING MATERIAL FOR WIRING, EMBEDDED MATERIAL, AND WIRING  
FORMATION METHOD

LOWER LAYER MATERIAL FOR WIRING, EMBEDDED MATERIAL,  
AND WIRING FORMATION METHOD

015297/0600 PAGE 2

SHAREILL COLES, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

05-10-2004

S-5-54

PTO



102741646

ord the attached original docum

To the Honorable Assistant Secretary and Commission  
thereof.

## 1. Name of conveying party(ies):

Etsuko NAKAMURA and Kazumasa WAKIYA

Additional name(s) of conveying party(ies) attached? No

## 3. Nature of conveyance:

- Assignment       Security Agreement       Merger       Change of Name  
 Other

Execution Date: February 27, 2004

## 4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.  
10/721,164, filed November 26, 2003

B. Patent No.(s)  
, issued

Additional numbers attached? No

5. Name and address of party to whom correspondence  
concerning document should be mailed:

Name: WENDEROTH, LIND & PONACK, L.L.P.  
Attn: Matthew M. Jacob, Esq.

Street Address: 2033 K Street, N.W., Suite 800City: Washington, State: DC ZIP: 20006-1021

## 6. Total number of applications and patents involved: 1

## 7. Total fee (37 CFR 3.41). . . . . \$ 40.00

Enclosed (Check No. 01618)  
Authorized to be charged to deposit account

8. Deposit account number: 23-0975

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

## 9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Matthew M. Jacob, Reg. No. 25,154  
Name of Person Signing

Matthew Jacob  
Signature

May 5, 2004  
Date

Total number of pages including cover sheet: 1

OMB No. 0651-0011 (exp. 4/94)

Do not detach this portion

Mail documents to be recorded with required cover sheet information:

Commissioner and Assistant Secretary of Patents and Trademarks  
Box Assignments  
Washington, D.C. 20231

Public burden reporting for this sample cover sheet is estimated to average about 30 minutes per document to be recorded, including time for reviewing the document and gathering the data needed, and completing and reviewing the sample cover sheet. Send comments regarding burden estimate to the U.S. Patent and Trademark Office, Office of Information Systems, PK2-1000C, Washington, D.C. 20231, and the C Management and Budget, Paperwork Reduction Project (0651-0011), Washington, D.C. 20503.

05/07/2004 REC'D ATACHE 00000132 10724164

01 FC:8021

40.00 DP

## ASSIGNMENT

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned

Insert Name(s)  
of Inventor(s)

Etsuko NAKAMURA and Kazumasa WAKIYA of  
c/o TOKYO OHKA KOGYO CO., LTD., 150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012 Japan

Insert Name(s)  
of Assignee(s)

the undersigned hereby sell(s) and assign(s) to  
TOKYO OHKA KOGYO CO., LTD.

Address

of 150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012 Japan

(hereinafter designated as the Assignee) the entire right, title and interest for the United States as defined in 35 USC 100, in the invention known as

Title of  
Invention

LOWER LAYER MATERIAL FOR WIRING, EMBEDDED MATERIAL, AND WIRING FORMATION METHOD

Date of  
Signing  
of Application

for which an application for patent in the United States has been executed by the undersigned

on Feb. 2, 2004

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division or reissue thereof and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

The undersigned agree(s) to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the Assignee.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patents of the United States resulting from said application or any division or divisions or continuing or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the firm of WENDEROTH, LIND & PONACK, L.L.P., 2033 K Street, N.W., Suite 800, Washington, D.C. 20006-1021, the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent Office for recordation of this document.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: Feb. 2, 2004

*Etsuko Nakamura*  
(Signature of Inventor) Etsuko NAKAMURA

Date: Feb. 2, 2004

*Kazumasa Wakiya*  
(Signature of Inventor) Kazumasa WAKIYA

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature of Inventor)

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature of Inventor)

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature of Inventor)

(This assignment should preferably be acknowledged before a United States Consul. If not, then the execution by the Inventor(s) should be witnessed by at least two witnesses who sign here.)

Witness Osamu Kato Osamu KATO  
Witness Yasumitsu Taira Yasumitsu TAIRA

## ACKNOWLEDGMENT

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ } ss

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally came the above-named me personally known as the individual(s) who executed the foregoing assignment, who did acknowledge to me that he (they) executed the same of his (their) own free will for the purposes therein set forth.

\_\_\_\_\_  
Official Signature

SEAL

\_\_\_\_\_  
Official Title

The above application may be more particularly identified as follows:

U.S. Application Serial No. \_\_\_\_\_ Filing Date \_\_\_\_\_

Applicant Reference Number \_\_\_\_\_ Atty Docket No. \_\_\_\_\_

Title of Invention \_\_\_\_\_

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**